

CDBAIRUI GAXAX8080

CDBAIRUI GAXAX8080 8DI+8DO Distributed Remote IO Expansion Module User Manual

Model: GAXAX8080

1. INTRODUCTION

The CDBAIRUI GAXAX8080 is an 8-channel Digital Input (DI) and 8-channel Digital Output (DO) Distributed Remote IO Expansion Module. It is designed to expand the IO capabilities of a host system, specifically the M31 series distributed IO host. This module facilitates analog switch acquisition and supports communication via RJ45 (Ethernet) and RS485 interfaces, utilizing Modbus-TCP and Modbus-RTU protocols.

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of the GAXAX8080 module to ensure optimal performance and longevity.



Figure 1: CDBAIRUI GAXAX8080 Distributed Remote IO Expansion Module, front view showing indicators and terminal blocks.

2. SETUP AND INSTALLATION

2.1 Physical Installation

The GAXAX8080 module offers flexible installation options:

- **Positioning Hole Installation:** Secure the module using screws through the designated positioning holes.
- **Guide Rail Installation:** Mount the module onto a standard DIN rail for quick and secure integration into control cabinets.

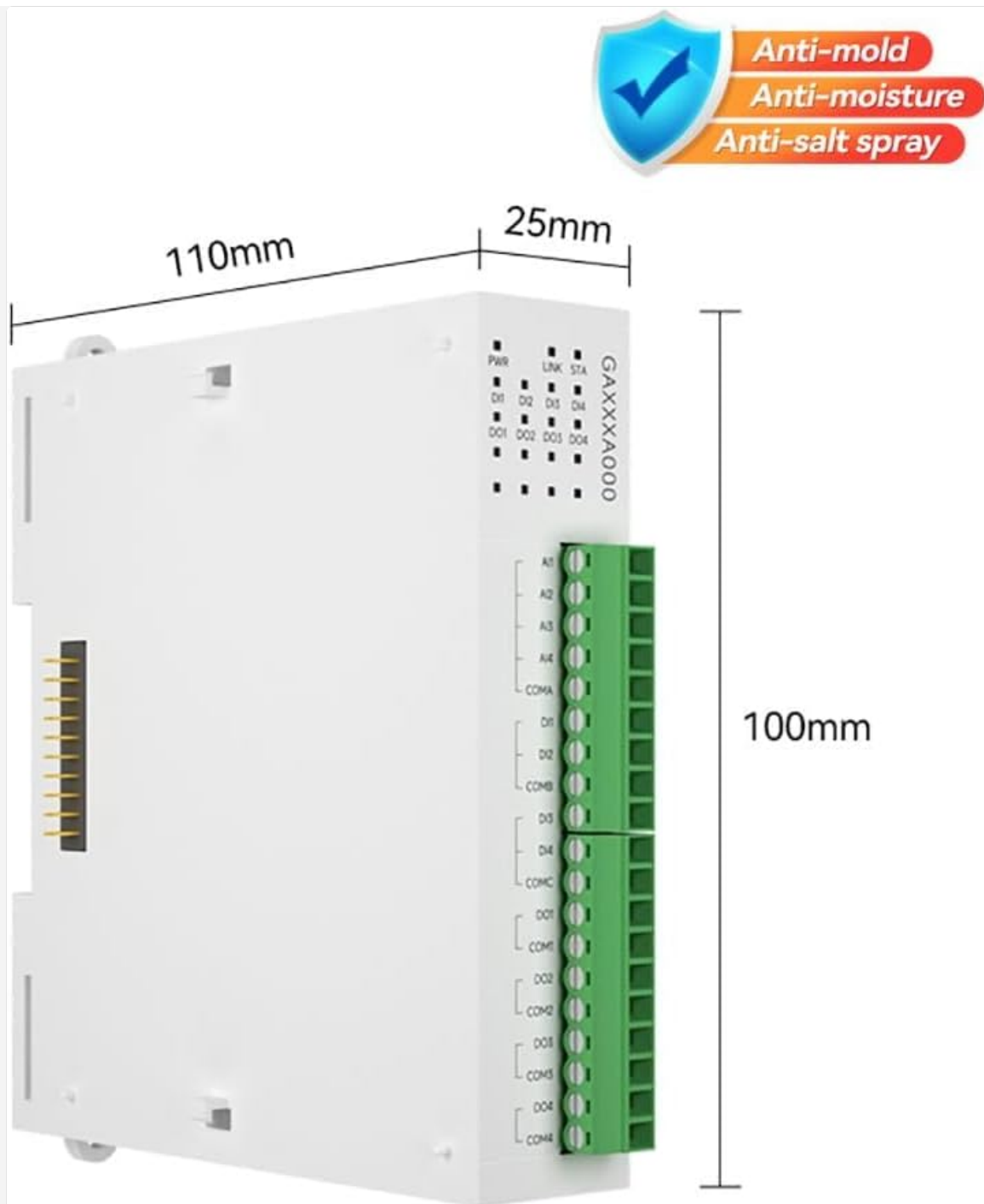


Figure 2: GAXAX8080 module dimensions (110mm x 25mm x 100mm) and environmental protection features.

2.2 Power Supply

The module requires a DC power input within the range of **9V to 36V**. Ensure the power supply is stable and meets the specified voltage requirements to prevent damage or erratic operation.

2.3 Wiring

Connect the digital inputs (DI), digital outputs (DO), analog inputs (AI), and communication interfaces (RJ45, RS485) according to your system requirements. A wiring diagram is conveniently located on the side of the product for on-site reference. Ensure all connections are secure and correctly polarized.

2.4 Initial Configuration

The GAXAX8080 module supports rapid configuration and expansion:

- **Host Requirement:** This module must be used in conjunction with a CDBAIRUI M31 series distributed

IO host.

- **One-Click Rapid Expansion:** The system allows for quick expansion of IO interfaces.
- **Dial Code Configuration:** ModBus addresses can be quickly configured using dial codes directly on the module, eliminating the need for a host computer for this specific task.

Support for dial code configuration

ModBus addresses can be quickly configured by dialing codes without the need for a host computer.



Figure 3: Example of dial code switches for ModBus address configuration.



Figure 4: Illustration of distributed remote IO modules, showing a host unit connected to expansion modules.

3. OPERATING INSTRUCTIONS

3.1 Basic Functions

The GAXAX8080 module provides 8 digital inputs and 8 digital outputs, along with analog input/output capabilities, supporting a wide range of industrial applications.

3.2 Communication Interfaces

- **RJ45 (Ethernet):** Supports Modbus-TCP protocol for network communication.
- **RS485:** Supports Modbus-RTU protocol for serial communication.

The module features dual control capabilities, allowing communication over both Ethernet and RS485 simultaneously.

3.3 LED Indicators

The module is equipped with LED indicators to provide real-time status information:

- **PWR:** Power indicator. Illuminates when the module is powered on.
- **LINK:** Signal indicator. Indicates communication link status.
- **STA:** Status indicator. Provides general operational status.
- **DI/DO:** Input/Output indicators. Show the status of individual digital input and output channels.

3.4 Digital Input (DI) Features

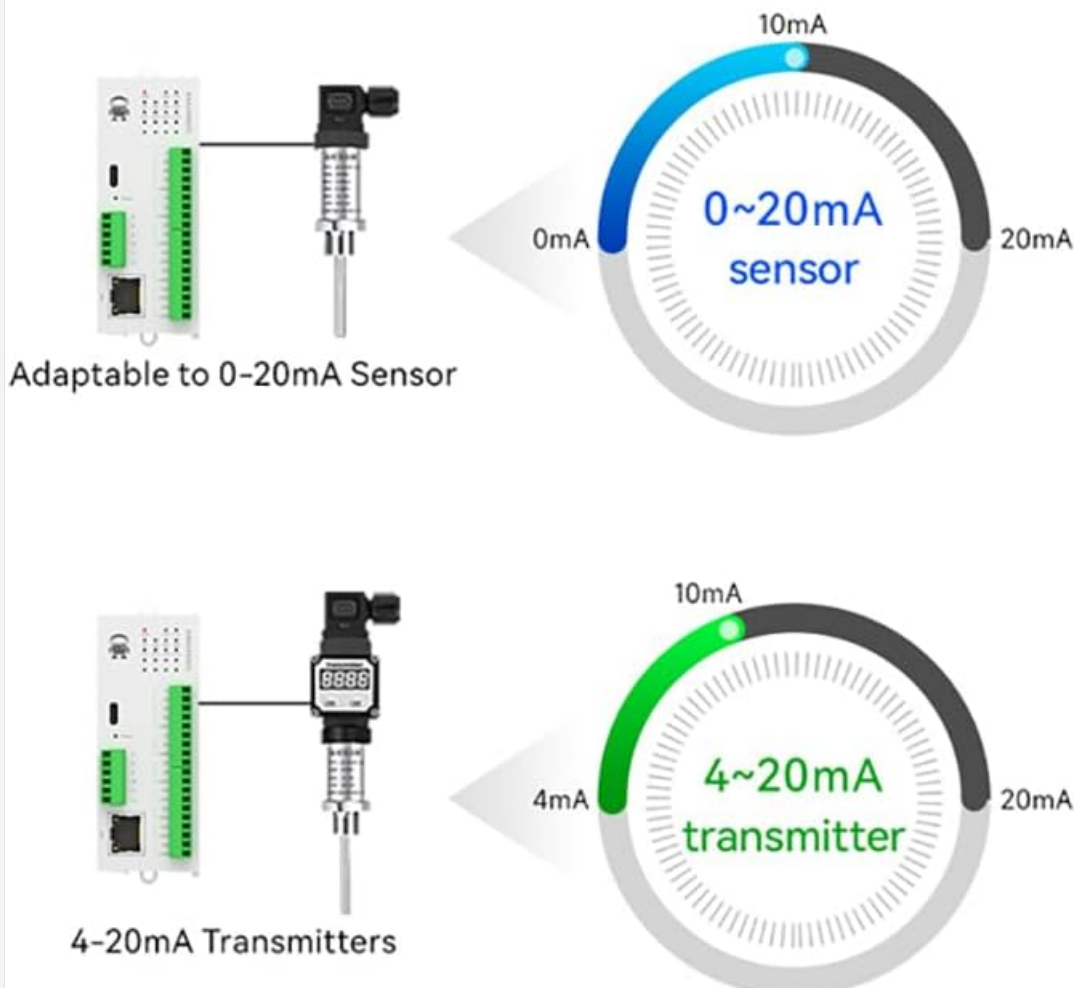
- Supports both **PNP and NPN inputs**, offering compatibility with various sensor types.
- **DI Filtering (Anti-Jitter):** Automatically filters out jittery signals, ensuring cleaner and more stable input signals.

3.5 Analog Input (AI) Features

- **Configurable Input Ranges:** Suitable for 0-20mA and 4-20mA sensors/transmitters.
- **High Accuracy:** Factory calibrated to ensure precise analog acquisition.

Configurable input ranges

Suitable for 0-20mA/4-20mA sensors/transmitters



3.6 ModBus System Integration

The GAXAX8080 module supports seamless integration into existing ModBus systems, allowing configuration with various devices:

- **PLC (Programmable Logic Controller):** Connects to PLCs for industrial automation.
- **HMI (Human-Machine Interface) Touch Screen:** Compatible with touch screens for user interaction and monitoring.
- **Host Computer:** Integrates with host computers for centralized control and data acquisition.

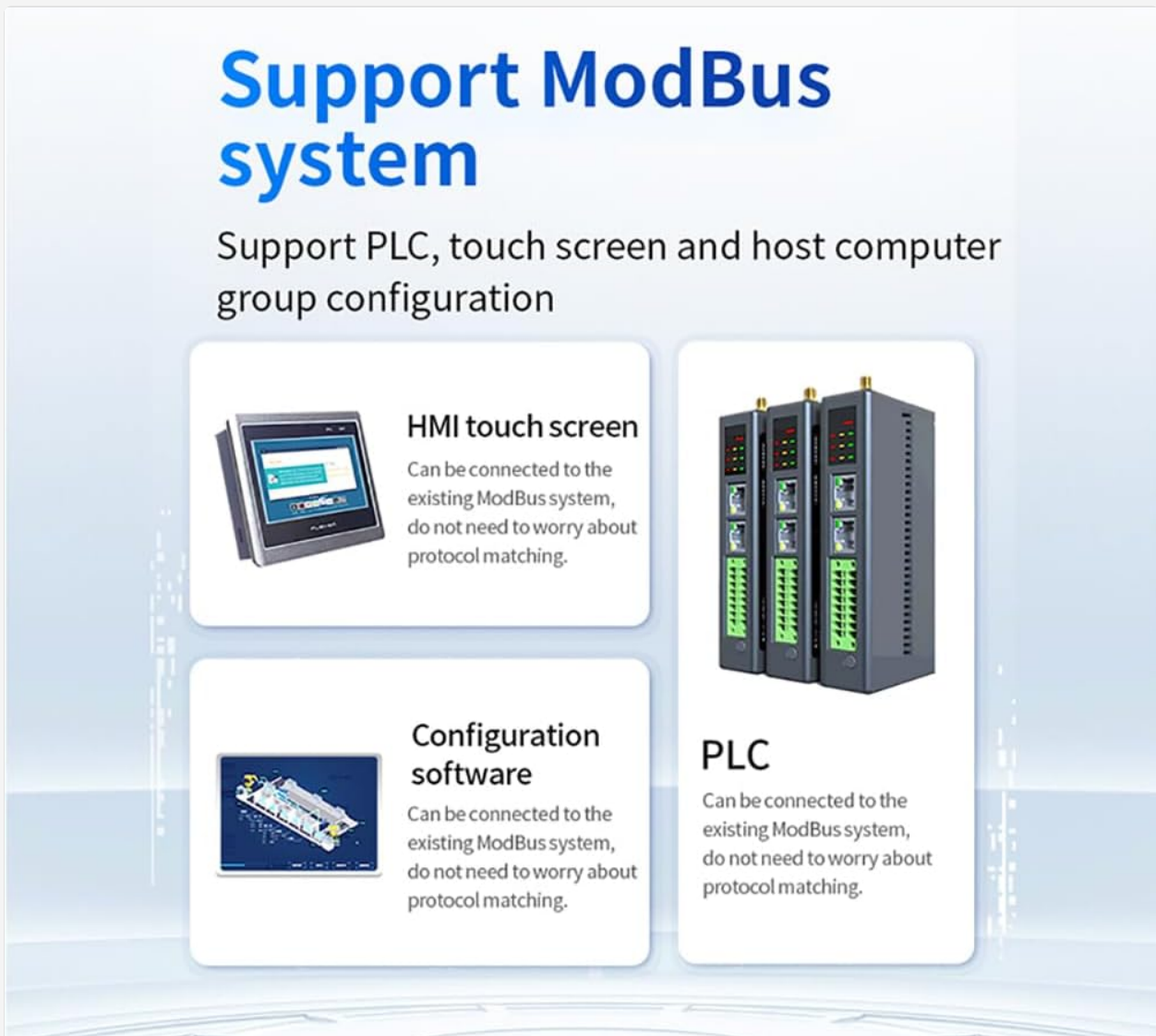


Figure 6: ModBus system integration showing compatibility with HMI touch screens, configuration software, and PLCs.

3.7 Rapid Debugging Operation

The module supports upper computer software to facilitate rapid debugging and parameter configuration of the equipment. This software provides an intuitive interface for monitoring DI status, DO state switching, AI input acquisition, and AO output range settings.

Support rapid debugging operation

Support the upper computer software to realize the rapid debugging and parameter configuration of equipment

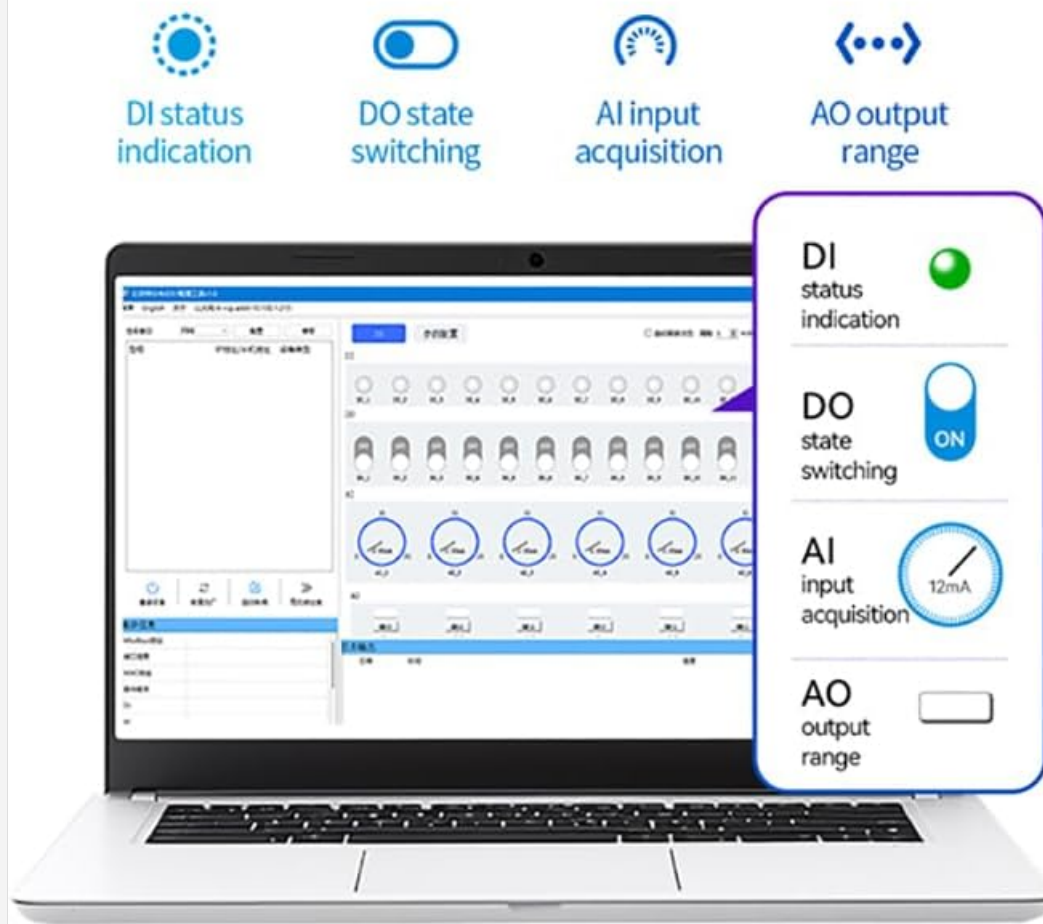


Figure 7: Screenshot illustrating the rapid debugging software interface for monitoring and configuring module parameters.

3.8 Multiple Socket Links

The GAXAX8080 module supports up to 5 simultaneous socket links, enhancing its connectivity and data handling capabilities within a network.

4. MAINTENANCE

4.1 Firmware Upgrade

The module supports remote firmware upgrade functionality for both the host and expansion modules. This ensures that your system can always benefit from the latest features and performance improvements.

4.2 Environmental Protection

The GAXAX8080 module is designed with robust environmental protection features, including anti-mold, anti-moisture, and anti-salt spray properties, contributing to its stable operation in various industrial environments.

5. TROUBLESHOOTING

If you encounter issues with your GAXAX8080 module, consider the following troubleshooting steps:

- **No Power:** Check the power supply connection and ensure the input voltage is within the 9-36V DC range. Verify the PWR LED indicator.
- **Communication Failure:** Inspect RJ45 and RS485 cable connections. Check the LINK LED indicator for network activity. Ensure ModBus addresses and protocols are correctly configured.
- **Incorrect IO Readings:** Verify wiring for DI/DO/AI channels. Check DI/DO LED indicators. For analog inputs, confirm the sensor type and configured input range (0-20mA or 4-20mA).
- **Module Not Recognized by Host:** Ensure the module is properly connected to the M31 series host. Perform a 'Double-click Reload' on the host to quickly reconfigure IO expansion modules.
- **Erratic Behavior:** Ensure the module is securely mounted and not subjected to excessive vibration or extreme environmental conditions outside its operating specifications.

For persistent issues, refer to the detailed documentation for the M31 series host or contact CDBAIRUI technical support.

6. SPECIFICATIONS

Feature	Specification
Model	GAXAX8080
Digital Inputs (DI)	8 channels (PNP and NPN compatible)
Digital Outputs (DO)	8 channels
Analog Inputs (AI)	Configurable for 0-20mA / 4-20mA sensors/transmitters
Communication Interface	RJ45 (Ethernet), RS485
Communication Protocols	Modbus-TCP, Modbus-RTU
Working Voltage	DC: 9~36V
Installation Method	Positioning hole, Guide rail installation
Product Size (L*W*H)	110mm * 25mm * 100mm
Product Weight	124 ± 5g
Host Compatibility	Requires CDBAIRUI M31 series distributed IO host
Max Expansion Modules	Up to 16 expansion modules per host

Feature	Specification
Special Features	DI Filtering (Anti-Jitter), Remote Firmware Upgrade, Anti-mold, Anti-moisture, Anti-salt spray
Simultaneous Socket Links	Supports 5 simultaneous links

7. WARRANTY AND SUPPORT

Warranty and specific support information for the CDBAIRUI GAXAX8080 Distributed Remote IO Expansion Module were not provided in the source data. Please refer to the product packaging, official CDBAIRUI website, or contact your vendor for detailed warranty terms and technical support options.